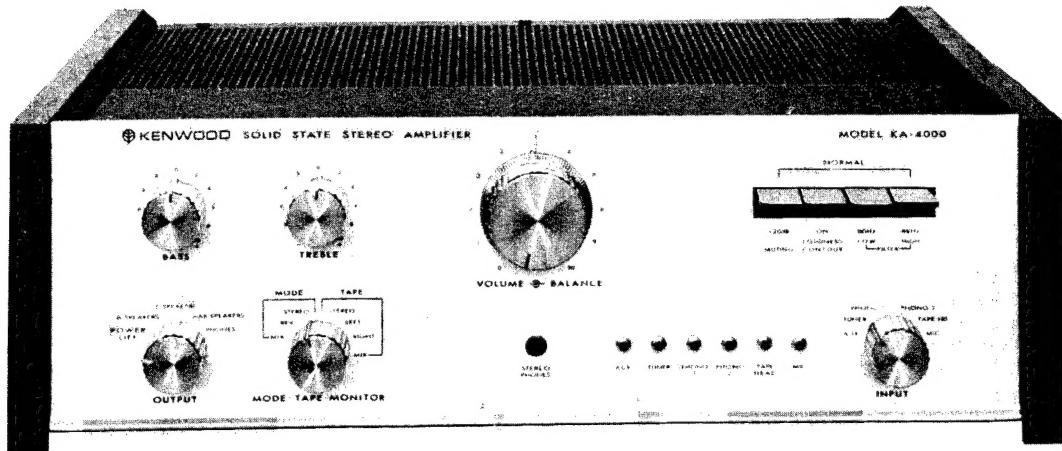


KENWOOD
HI/FI STEREO COMPONENTS

SERVICE MANUAL

KA-4000



SOLID STATE STEREO AMPLIFIER

PARTS DESCRIPTION LIST

MAIN CHASSIS SECTION			
PRINTED CIRCUITS			
—	PRE AMP BLOCK	(UA1342K)	
—	NF TONE BLOCK	(UA13443E)	
—	H.P. 40Hz BLOCK	(UA1350k2)	
—	MAIN AMP BLOCK	(UA1349K1)	
Symbol No.	Description	Part No.	Remarks
RESISTORS			
R1, 2	Fixed Carbon Composition	390k Ω $\pm 10\%$ 1/2W	
R3, 4	Fixed Carbon Composition	100k Ω $\pm 10\%$ 1/2W	
R5	Fixed Carbon Composition	10k Ω $\pm 10\%$ 1/2W	
R6	Fixed Carbon Composition	220 Ω $\pm 10\%$ 1/2W	
R7 ~ 9	Fixed Carbon Composition	10k Ω $\pm 10\%$ 1/2W	
R10	Fixed Carbon Composition	220 Ω $\pm 10\%$ 1/2W	
R11 ~ 18	Fixed Carbon Composition	3.9k Ω $\pm 5\%$ 1/2W	
R19 ~ 26	Fixed Carbon Composition	3.3k Ω $\pm 5\%$ 1/4W	
R27 ~ 34	Fixed Carbon Composition	5.6k Ω $\pm 5\%$ 1/4W	
R35 ~ 42	Fixed Carbon Composition	7.5k Ω $\pm 5\%$ 1/4W	
R43 ~ 50	Fixed Carbon Composition	12k Ω $\pm 5\%$ 1/4W	
R51 ~ 58	Fixed Carbon Composition	15k Ω $\pm 5\%$ 1/4W	
R59, 60	Insulated Carbon Film	56k Ω $\pm 10\%$ 1/2W	
R61, 62	Insulated Carbon Film	10k Ω $\pm 5\%$ 1/4W	
R63, 64	Fixed Carbon Composition	2.2k Ω $\pm 10\%$ 1/4W	
R65, 66	Insulated Carbon Film	82k Ω $\pm 5\%$ 1/4W	
R67, 68	Fixed Carbon Composition	680k Ω $\pm 10\%$ 1/2W	
R71, 72	Insulated Carbon Film	150 Ω $\pm 5\%$ 1/4W	
R73, 74	Insulated Carbon Film	820 Ω $\pm 5\%$ 1/4W	
R75 ~ 78	Wire Wound	0.47 Ω $\pm 10\%$ 1W	
R79, 80	Fixed Carbon Composition	4.7 Ω $\pm 10\%$ 2W	
R81, 82	Fixed Carbon Composition	4.7 Ω $\pm 10\%$ 1/2W	
R83	Fixed Carbon Composition	56 Ω $\pm 10\%$ 1/2W	
R84, 85	Fixed Carbon Composition	1k Ω $\pm 10\%$ 1/2W	
R86, 87	Fixed Carbon Composition	470 Ω $\pm 10\%$ 1/2W	
R88	Fixed Carbon Composition	4.7k Ω $\pm 10\%$ 1/2W	
R89	Fixed Carbon Composition	470 Ω $\pm 10\%$ 1/2W	
R90	Resin Coated Wire Wound	1k Ω $\pm 5\%$ 4W	
R91	Fixed Carbon Composition	4.7k Ω $\pm 10\%$ 1/2W	
R92, 93	Fixed Carbon Composition	47 Ω $\pm 10\%$ 1/2W	
R94	Fixed Carbon Composition	470 Ω $\pm 10\%$ 1/2W	
R95	Fixed Carbon Composition	560 Ω $\pm 10\%$ 1/2W	
R96, 97	Fixed Carbon Composition	18k Ω $\pm 10\%$ 1/2W	
R100	Fixed Carbon Composition	150 Ω $\pm 10\%$ 1/2W	
R101~104	Fixed Carbon Composition	100k Ω $\pm 10\%$ 1/2W	
CAPACITORS			
C1, 2	Mylar	0.22 μ F $\pm 20\%$	
C3, 4	Mylar	0.0022 μ F $\pm 20\%$	
C5, 6	Electrolytic Tubular	3.3 μ F 16WV	
C7, 8	Mylar	0.22 μ F $\pm 20\%$	
C9, 10	Mylar	0.47 μ F $\pm 20\%$	
C11, 12	Mylar	0.056 μ F $\pm 20\%$	
C13, 14	Mylar	0.018 μ F $\pm 20\%$	
C15, 16	Electrolytic Block	2200 μ F 50 WV	
C17, 18	Mylar	0.22 μ F $\pm 20\%$	
C19	Electrolytic Block	1000 μ F 25WV	
C20	Electrolytic Block	1000 μ F 50WV	
C21	Electrolytic Block	2200 μ F 80WV	
C22	Oil Impregnated paper	0.02 μ F $\pm 20\%$	
C23	Oil Impregnated paper	0.01 μ F $\pm 20\%$	
C24, 25	Electrolytic Tubular	100 μ F 25WV	
C26	Oil Impregnated paper	0.02 μ F $\pm 20\%$	
POTENTIOMETERS			
VR3, 4	VOLUME 50k Ω (B) x 2, BALANCE 50k Ω (G) 3 Gang	R11-4006-05	
TRANSISTORS/DIODE/THERMISTORS			
Q1 ~ 4	2SC793 Power Amp.		
D1	SPN-02 Rect.		
TH1, 2	SDT-1000L or 5T-41L		
SWITCHES			
S1, 2	Rotary SW F-2 · 2 · 11 (BASS, TREBLE)	S04-2021-05	
S3	Rotary SW F-4 · 11 · 6 (SELECTOR)	S04-4010-05	
S4	Rotary SW F-2 · 4 · 7 (MODE/TAPE MONITOR)	S04-2022-05	
S6 ~ 9	Lever SW (4 Gang) (MUTING, LOUDNESS, High FILTER 8kHz, BALANCE, Low FILTER 80Hz)	S38-5003-05	

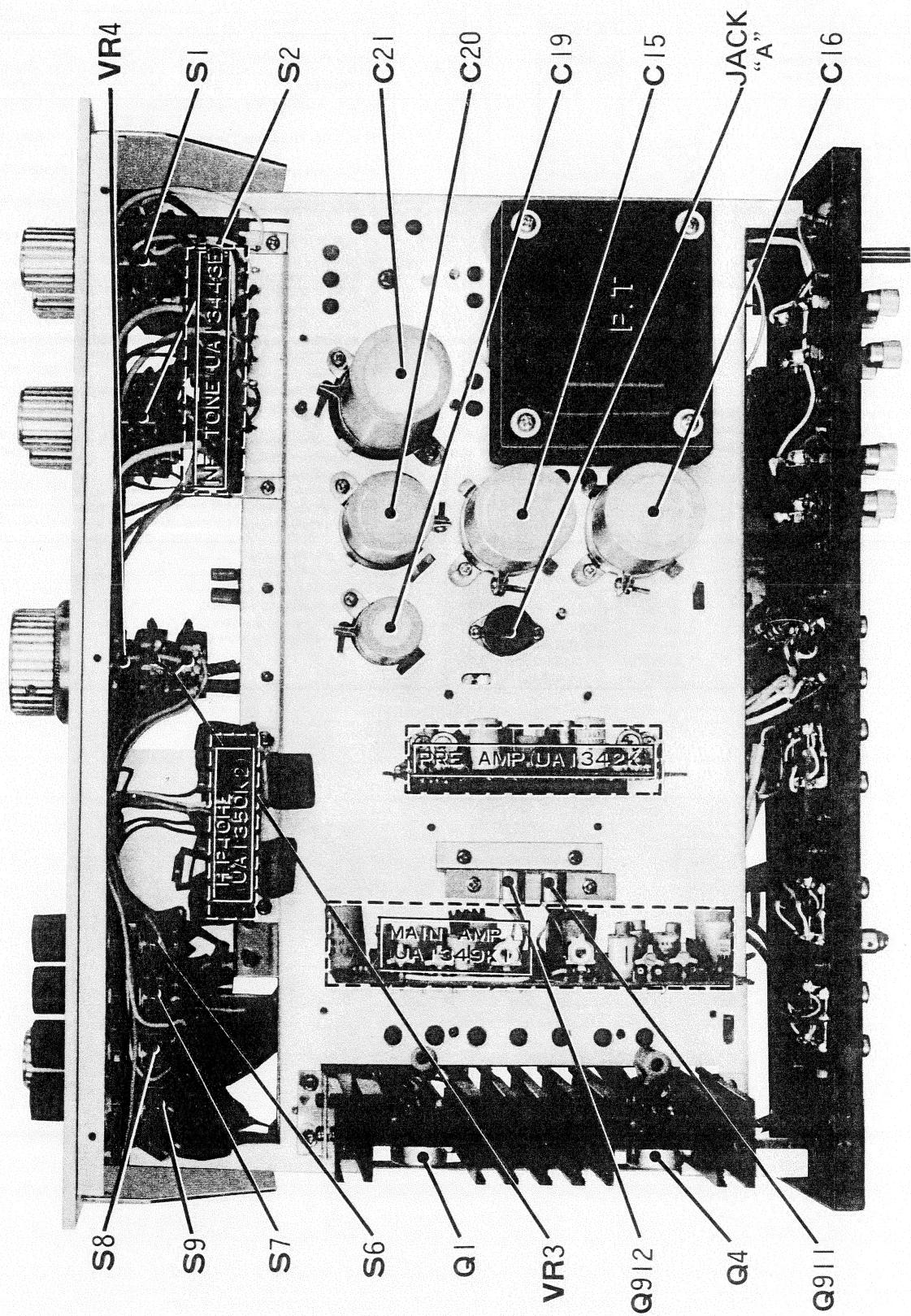
Symbol No.	Description	Part No.	Remarks
MISCELLANEOUS			
—	Case	A01-0070-03	
—	Chassis	A10-0119-01	
—	Panel	A10-0221-02	
—	Sub-Panel	A22-0049-02	
—	Sole-Plate	A40-0035-03	
—	Jewel	B08-6006-00	
P. L.	Pilot Lamp x 6	B30-0029-05	
—	Certification	B42-0009-02	
—	Name Plate (TEST POINT)	B42-0117-04	
—	Name Plate (INSTRUCTION)	B42-0163-04	
—	UL AC Socket (Black) x 2	B46-0010-00	
—	Transistor Holder x 4	E02-0207-05	
—	5P Connector Socket	E05-0501-05	
—	Consert (4P)	E06-0104-05	
—	Short Plug	E07-0404-05	
—	Connector (18P) x 2	E10-1804-05	
J	US Jack	E11-0023-05	
J	Pin Jack (1P)	E13-0201-04	
J	Pin Jack (2P) x 2	E13-0205-05	
J	Pin Jack (4P) x 4	E13-0404-05	
—	Pin Plug	E14-0101-05	
—	Short Pin Plug x 6	E14-0107-05	
—	P. L. Socket x 6	E15-0010-05	
—	T shape Terminal Board	E20-0609-05	
—	Lug x 2	E22-0206-05	
—	Lug x 5	E22-0404-05	
—	Short Pin x 2	E30-0093-05	
—	Radiator	F01-0046-03	
—	Lamp Cover x 6	F07-0011-04	
—	Shield Plate	F10-0069-04	
—	Shield Plate	F10-0070-04	
—	Case Patch Board	F19-0033-03	
—	Case Patch Board	F19-0034-03	
—	Corrugated Cardboard Case	H01-0039-13	
—	Polyethrene Form Fixture	H10-0048-03	
—	Polyethrene Form Fixture	H10-0049-03	
—	Buffer Fixture	H10-0052-03	
—	Polyethrene Cover (420 x 140 x 290)	H20-0010-03	
—	Polyethrene Bag	H25-0007-04	
—	Protection Bag	H25-0049-03	
—	Legs x 4	J02-0010-04	
—	Diode Holder	J21-0122-04	
—	Amp-Holder	J21-0192-04	
—	Radiator Angle x 2	J21-0415-04	
—	Pin Jack Holder x 2	J21-0437-04	
—	Metal Fittings (for jewel) x 6	J21-0438-04	
—	Thermistor Holder	J21-0545-04	
—	Boss x 4	J32-0081-04	
—	Knob (BASS, TREBLE, OUTPUT, INPUT, MODE/TAPE MONITOR) 23 ϕ	K20-0054-04	
—	Knob (VOLUME) 38 ϕ	K20-0066-04	
—	Knob (BALANCE) 44 ϕ	K20-0071-04	
—	Decorated Screw x 4	N08-0003-04	
—	Decorated Screw x 6	N08-0094-05	
—	Hexagon Nut (N3-F-ISO)	N10-2030-11	
—	Speed Nut	N14-0018-04	
—	Flat Head Washer	N15-1040-11	
—	Inter Lock Washer (KW19-S) x 2	N17-1090-41	
—	Pan Head Screw (⊕ P3 x 6-F-ISO) x 15	N30-3006-11	
—	Black Pan Head Screw (⊕ P3 x 6-F · K) x 13	N30-3006-15	
—	Pan Head Screw (⊕ P3 x 8-F-ISO) x 8	N30-3008-11	
—	Black Pan Head Screw (⊕ P3 x 8-F · K) x 8	N30-3008-15	
—	Pan Head Screw (⊕ P3 x 10-F) x 2	N30-3010-11	
—	Pan Head Screw (⊕ P3 x 12-F-ISO) x 8	N30-3012-11	
—	Black Pan Head Screw (⊕ P3 x 12-F · K) x 2	N30-3012-15	
—	Pan Head Screw (P4 x 6-F-ISO) x 2	N30-4006-11	
—	Pan Head Screw (P3 x 6-F-ISO) x 2	N32-3004-11	
—	Pan Head Screw (P4 x 6-F-ISO) x 11	N32-3006-11	
—	Black Truss Screw (T3 x 6 x B) x 6	N34-3006-21	
—	Tapping Screw (⊕ TM3 x 6-F) x 31	N51-3006-11	
—	Tapping Screw (⊕ TM3 x 10-F) x 6	N51-3010-11	
—	Tapping Screw (⊕ TM4 x 6-F) x 8	N51-4006-11	
—	Tapping Screw (⊕ TM4 x 10-F) x 4	N51-4010-11	
—	Tinned Wire (0.8 ϕ , 0.45 m)	001-0801-00	
—	Tinned Wire (1.2 ϕ , 0.3 m)	001-1201-00	
—	P. V. C. Insulating Wire (Red, 0.8 ϕ , 0.3 m)	010-8221-00	
—	P. V. C. Insulating Wire (Yellow, 0.8 ϕ , 0.3 m)	010-8441-00	
—	P. V. C. Insulating Wire (White, 0.8 ϕ , 0.7 m)	010-8991-00	

PARTS DESCRIPTION LIST

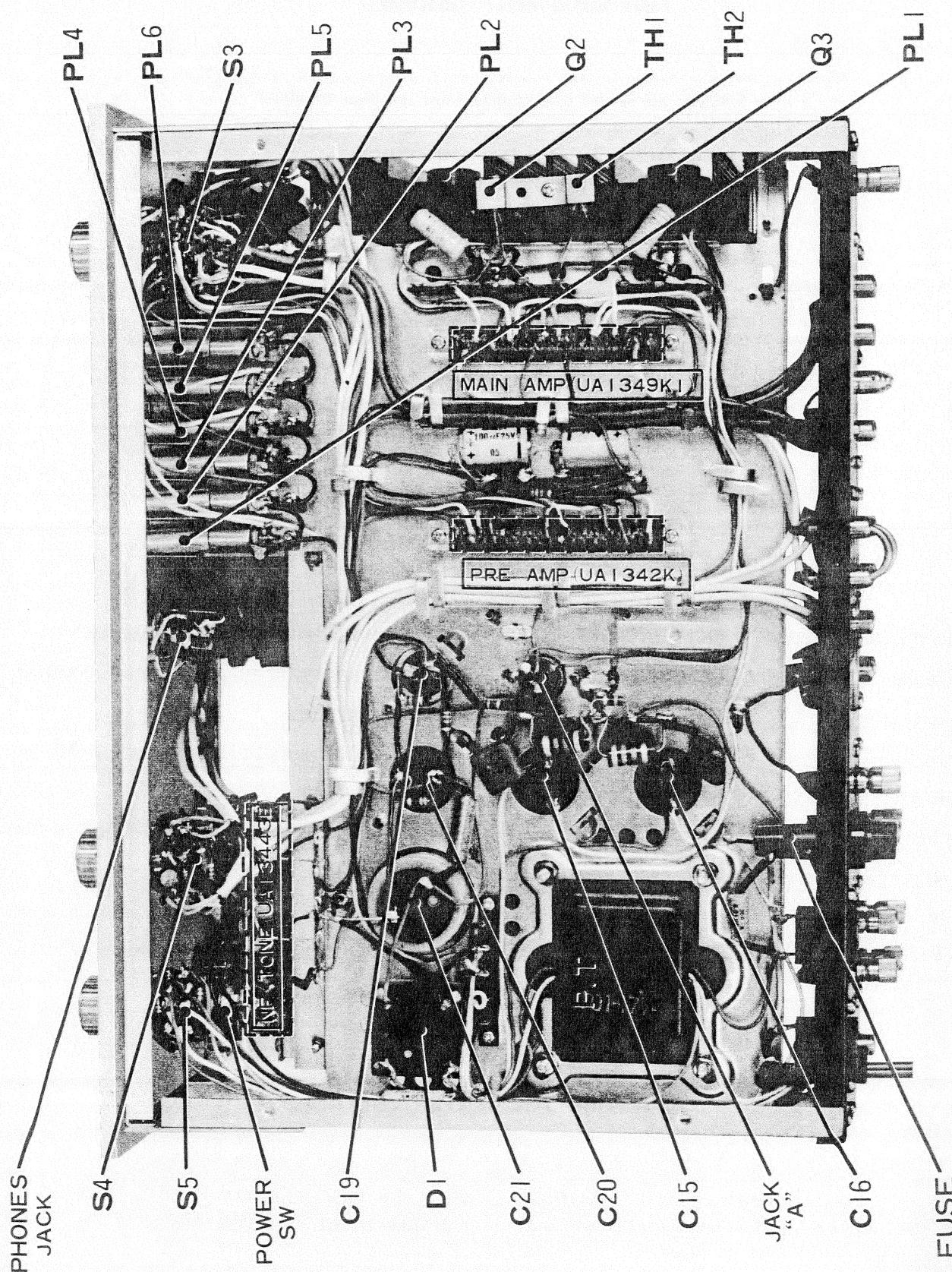
Symbol No.	Description	Part No.	Re-marks	Symbol No.	Description	Part No.	Re-marks
—	Vinyl Tube (1φ, 0.15 m)	212-1012-00		—	Power Transformer (S, X)	L04-0020-05	
—	Vinyl Tube (8φ, 0.55 m)	212-3004-00		—	Rotary SW with Power SW (F-1·4·5) (U,M,S,X)	S05-2002-05	
—	Vinyl Tube (6φ, 0.18 m)	212-6002-00		—	Rotary SW with Power SW (F-1·4·5) (E, W)	S04-1017-05	
—	Insulating Sleeve (5.5 m)	352-1502-00		S10	Slide SW (for AC power Selector) (U,M,S,X,W)	S31-2004-05	
—				—	AC Cord (2 m) (X)	W12-0305-05	
—	Back Panel (U, M)	A23-0139-02		—	P. V. C. Insulated Wire (Red, 0.5φ, 5.5m) (S, X, E, M)	010-5222-00	
—	Back Panel (S, X)	A23-0137-02		—	P. V. C. Insulated Wire (Yellow, 0.5φ, 2m) (S,X,E,W)	010-5442-00	
—	Back Panel (E)	A23-0135-02		—	P. V. C. Insulated Wire (Blue, 0.5φ, 2,4m) (S,X,E,W)	010-5562-00	
—	Back Panel (W)	A23-0140-02		—	P. V. C. Insulated Wire (White, 0.5φ, 3.1m) (S,X,E,W)	010-5992-00	
—	Name Plate (for Destination) (U, M, W)	B40-369-04		—	P. V. C. Insulated Wire (Black, 0.8φ, 3.5m) (S,X,E,W)	010-8001-00	
—	Name Plate (for Destination) (E)	B40-0277-04		—	P. V. C. Insulated Wire (Red, 0.8φ, 0.3m) (U,M)	010-8221-00	
—	Name Plate (for Destination) (S, X)	B40-370-04		—	P. V. C. Insulated Wire (White, 0.5φ, 3.8m) (U,M)	010-6991-00	
—	Name Plate (for Fuse) (E, W)	B40-0289-04		—	P. V. C. Insulated Wire (Black, 0.8φ, 3.5m) (U,M)	011-6001-00	
—	Name Plate (SEV standard) (E)	B40-0293-04		—	P. V. C. Insulated Wire (Red, 0.5φ, 5.5m) (U,M)	011-6221-00	
—	Name Plate (SEV standard) (W)	B42-0024-04		—	P. V. C. Insulated Wire (Yellow, 0.5φ, 2.3m) (U,M)	011-6441-00	
—	Name Plate (earth lug) (E, W)	B44-0001-04		—	P. V. C. Insulated Wire (White, 0.5φ, 2.4m) (U,M)	011-6661-00	
—	Warranty Card (U)	B46-0013-00		—	AC Cord (2m)	032-0201-05	
—	Warranty Card (U)	B46-0022-00		—	Single-Core Shielded Wire (Brown, 1m) (S,X,E,W)	050-1101-05	
—	Schematic Diagram (U, E)	B52-0060-00		—	Single-Core Shielded Wire (Yellow, 2.6m) (S,X,E,W)	050-1401-05	
—	Schematic Diagram (M,W,X,S)	B52-0066-00		—			
—	Instructions	B58-0003-00		—			
—	Instructions (for AC power Selector) (S, X)	B58-0071-00		—			
—	Instructions (for AC power Selector) (E)	B58-0090-00		—			
—	Instructions (for AC power Selector) (U,M,W)	B58-0101-00		—			
—	Address Card (U)	B59-0018-00		—			
—	Switch Stopper (U,M,S,X,W)	D32-0022-04		—			
—	Plug (E, W)	E05-0203-05		—			
—	Terminal (for GND) x 9 (U,M,S,X)	E21-0118-05		—			
—	Terminal (for GND) x 10 (E, W)	E21-0118-05		—			
—	Earth Lug (E, W)	E22-0108-04		—			
—	AC Cord (with Plug) (U, M)	E30-0046-05		—			
—	AC Cord (with Plug) (X)	E30-0047-05		—			
—	Fuse Holder (U, M, S, X)	J13-0007-05		—			
—	Fuse Holder (E, W)	J13-0012-00		—			
—	L shape Metal Fittings (E, W)	J21-0166-04		—			
—	AC Cord Bushings (S, X)	J41-0003-05		—			
—	AC Cord Bushings (U,M,E,W)	J41-0006-00		—			
P. T.	Power Transformer (U,M,E,W)	L03-0025-05					

Note For AC110 ~ 120V/220 ~ 240V Sets (PX)
 For AC110 ~ 120V/220 ~ 240V Sets (General export)
 For AC230 ~ 250V Sets (South Africa)
 For AC230 ~ 250V Sets (Australia)
 For AC220 ~ 240V Sets (Europe)
 For AC110 ~ 120V/220 ~ 240V Sets (Europe)

CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW



ALIGNMENT PROCEDURE

TEST EQUIPMENT REQUIRED

The following are needed to Completely test and align KA-4000.

- * Vacuum-Tube Voltmeter (100 mV DC scale)
- * Audio Vacuum-Tube Voltmeter
- * Oscilloscope (Flat to 100kHz Minimum)
- * Audio (Sine-wave) Generator
- * Intermodulation Distortion Analyzer
- * Harmonic Distortion Analyzer
- * Line Voltage Autotransformer or Voltage Regulator
- * 2-Load Resistors, 4 or 8 ohm, 80 Watts
- * 2-Full Range Speakers for Listening Tests
- * Stereo Source-Turntable or Tape Recorder for Listening Tests
- * Soldering Iron with Small Tip Fully Insulated from Power Line

ADJUSTING THE EQUALIZERS

PHONO (RIAA) PRE AMP BLOCK (UA1342K)

With the input at PHONO 1 LEFT-CH (RIGHT-CH), set the selector at PHONO 1.

With the output at TAPE REC LEFT-CH (RIGHT-CH), set main VR to zero (0).

Adjust input level at input frequency of 1000 Hz.

Then set output at 316 mV. Assuming the value at this point to be 0 dB, switch the input frequency to 30 Hz and set LEFT-CH/VR504 (RIGHT-CH/VR503) to +18.6 dB.

TAPE HD (NAB) PRE AMP BLOCK (UA1342K)

Place input to TAPE HD LEFT-CH (RIGHT-CH) and set selector to TAPE HD.

With output at TAPE REC LEFT-CH (RIGHT-CH), set main VR to zero (0).

Adjust input level at input frequency of 1000 Hz and set output to 316 mV.

At this point where the value is 0 dB, switch the input frequency to 10 kHz and set LEFT-CH/VR502 (RIGHT-CH/VR501) to -10.0 dB.

ADJUSTING THE CENTER VOLTAGE

Connect DC voltmeter to capacitor C15/LEFT-CH (C16/RIGHT-CH), across the positive terminal (2,200 μ F) and the grounding.

Adjust the VR904/LEFT-CH (VR903/RIGHT-CH) of MAIN AMP BLOCK "UA1349K1" to 34 V.

ALIGNMENT PROCEDURE

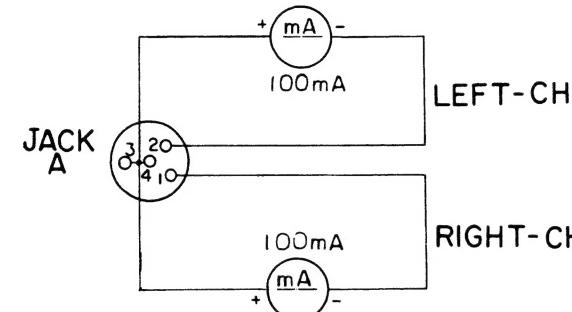
ADJUSTING THE CURRENT WITHOUT SIGNAL

Without input and AC power supply remove plug A. Then Connect 3 and 4 of jack A and Connect a DC ammeter of 100 mA range across these terminals and 1 (RIGHT-CH) and 2 (LEFT-CH).

Increase AC power gradually from 0 V.

Making sure that the needle of the ammeter does not

swing fullscale, adjust the VR906/LEFT-CH (VR905/RIGHT-CH) of the MAIN AMP BLOCK "UA1349K1" to set the reading at 30 mA when it is AC 117 V. However, in this case be sure to allow 3 minutes aging and to reset to guard against fluctuation in current.



PROTECTION ADJUSTMENT PROCEDURES

With an input at AUX, selector switch at AUX, mode switch at STEREO VR MAX, TONE at FLAT, each lever switch at normal, and the connected load to be 4 ohm, gradually increase the input of 1 kHz until the waveforms are clipped, while observing the waveform with the oscilloscope.

At this point, set VR902 in case of UA1349K1 LEFT-CH and VR901 in case of RIGHT-CH so that the waveforms

show fluctuation.

For the sake of good order, repeat lowering and increasing the input to make sure whether any fluctuation is noted in the waveforms before or after the clipping points with the contact load changed to 8 ohms.

The waveforms on the oscilloscope should show iterative effect in case the terminals of the load are shortcircuited.

PROCEDURE FOR REPLACING OUTPUT TRANSISTOR

Symptoms:

- A. When there is load hum at the speakers.
- B. When there is no output at all.
- C. When you cannot get rated output.

Replacing Method:

Replace all the four transistors, 2SC 793 (Toshiba) B-170003 (Bendix), 2N3055 (RCA.).

Adjusting procedures:

Connect dummy load to output terminals, and connect to the oscilloscope input in parallel. Set audio generator at 200 mV, 1000 Hz and connect to the AUX terminals.

Advance the front panel volume control until the sine-wave just begins to clip on the oscilloscope. Adjust DC balance control VR906 (LEFT) or VR905 (RIGHT) on the printed circuit board "UA1349K1" until clipping is symmetrical.

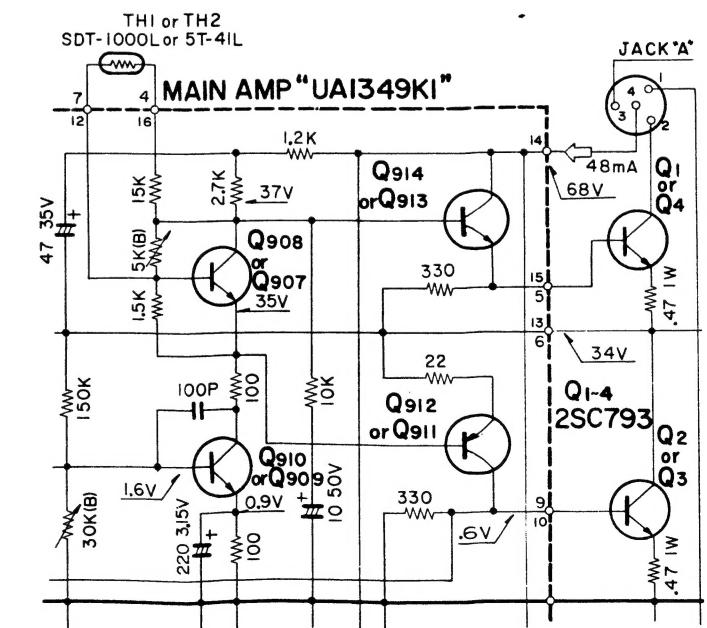
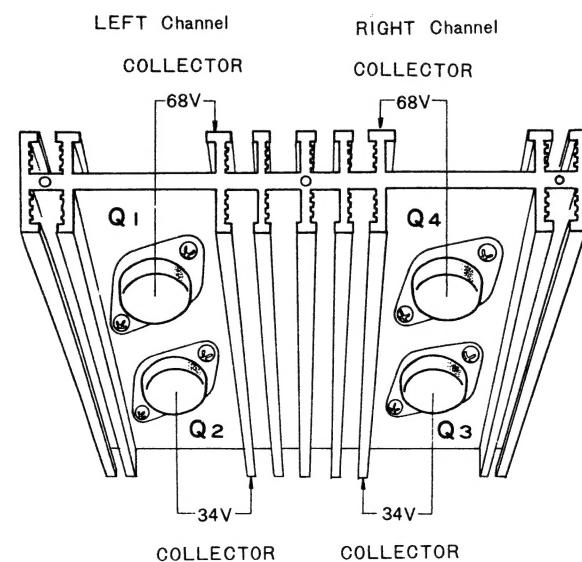
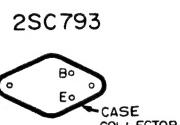
Testing procedures:

Until replacement is completed, do not operate the set the unit without first testing.

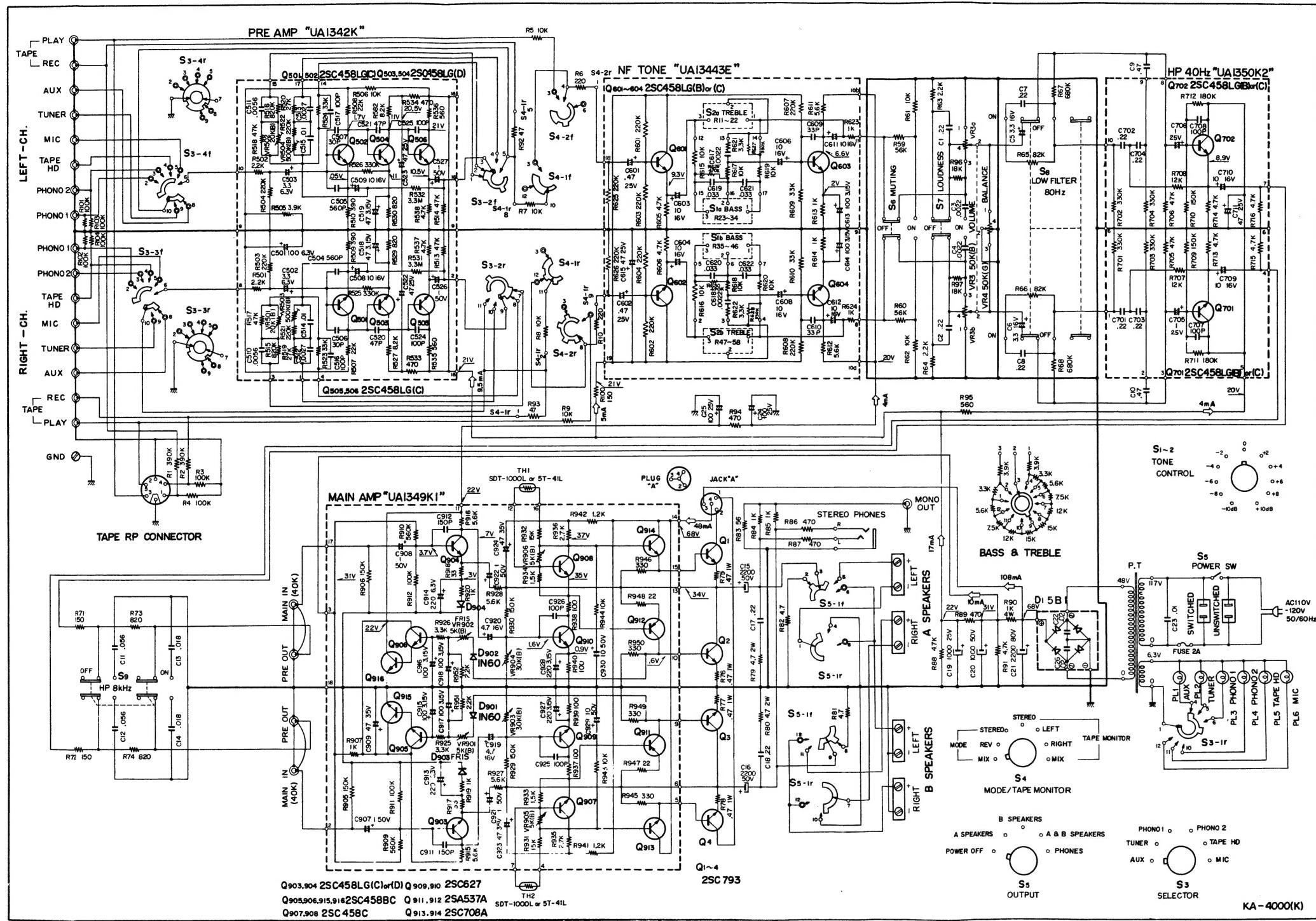
Perform the test according to the following procedures.

1. Using variable transformer, lower the AC line voltage to approximately 30 V.
2. Using a tester, measure the voltage between the chassis and collector of the power transistor Q2 or Q3. If a tester indicates approximately 34 V, it is normal.
3. Also measure the voltage between the chassis and collector of the power transistor Q1 or Q4. If a tester indicates approximately 68 V, it is normal.

BOTTOM VIEW OF TRANSISTOR

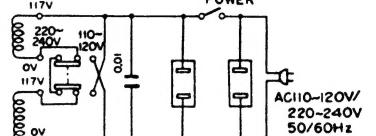


SCHEMATIC DIAGRAM

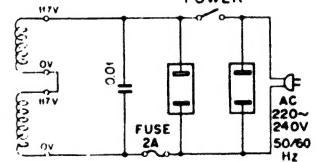


POWER TRANSFORMER ARRANGEMENTS

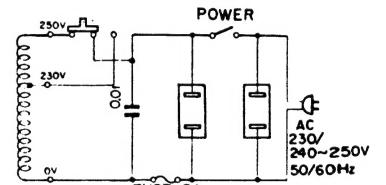
For AC 110-120 V / 220-240 V Sets



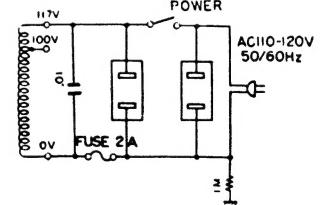
■ For AC 220-240 V Sets



■ For AC 230 V / 240-250 V Sets

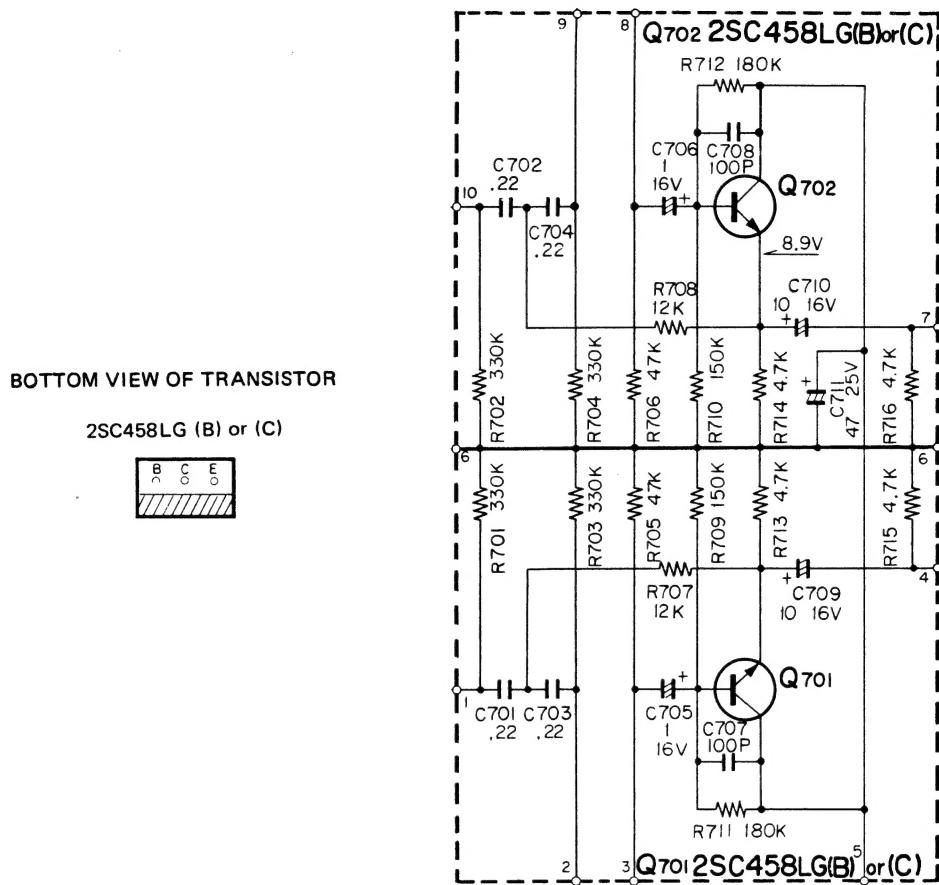


■ For Sets sold in Canada

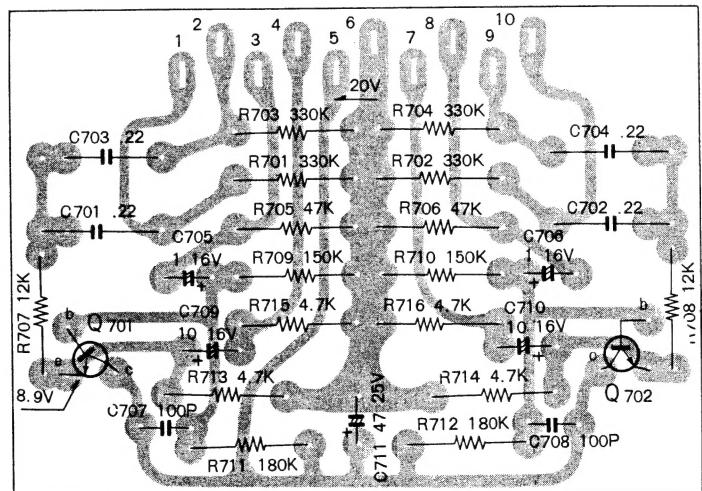


NOTE: We reserve the right to make modifications in this model in accordance with technical developments.

SCHEMATIC DIAGRAM



SEALED CIRCUIT ASSEMBLIES-PHANTOM VIEWS



Q 701, 702 2SC458LG (B) or (C)



H.P 40 Hz (UA 1350K2) SECTION

PARTS DESCRIPTION LIST

Symbol No.	Description				Part No.	Remarks
RESISTORS						
R701 ~ 704	Insulated Carbon Film	330k Ω	$\pm 10\%$	1/4W		
R705, 706	Insulated Carbon Film	47k Ω	$\pm 10\%$	1/4W		
R707, 708	Insulated Carbon Film	12k Ω	$\pm 10\%$	1/4W		
R709, 710	Insulated Carbon Film	150k Ω	$\pm 10\%$	1/4W		
R711, 712	Insulated Carbon Film	180k Ω	$\pm 10\%$	1/4W		
R713 ~ 716	Insulated Carbon Film	4.7k Ω	$\pm 10\%$	1/4W		
CAPACITORS						
C701 ~ 704	Mylar	0.22 μ F	$\pm 10\%$			
C705, 706	Electrolytic Tubular	1 μ F	16WV			
C707, 708	Ceramic	100pF	$\pm 10\%$			
C709, 710	Electrolytic Tubular	10 μ F	16WV			
C711	Electrolytic Tubular	47 μ F	25WV			
TRANSISTORS						
Q701, 702	2SC458LG (B) or (C)					
MISCELLANEOUS						
—	Printed Circuit Board				S23-205	
—	L Type Metal Fittings x 2				A4986	
—	Screw (⊕ P3 x 6-F-ISO) x 2				N30-3006-11	
—	Terminal				N4085	
—	Terminal				N4086	
—	Vinyl Tube	1φ (0.02 m)			W07-01Z	

SCHEMATIC DIAGRAM

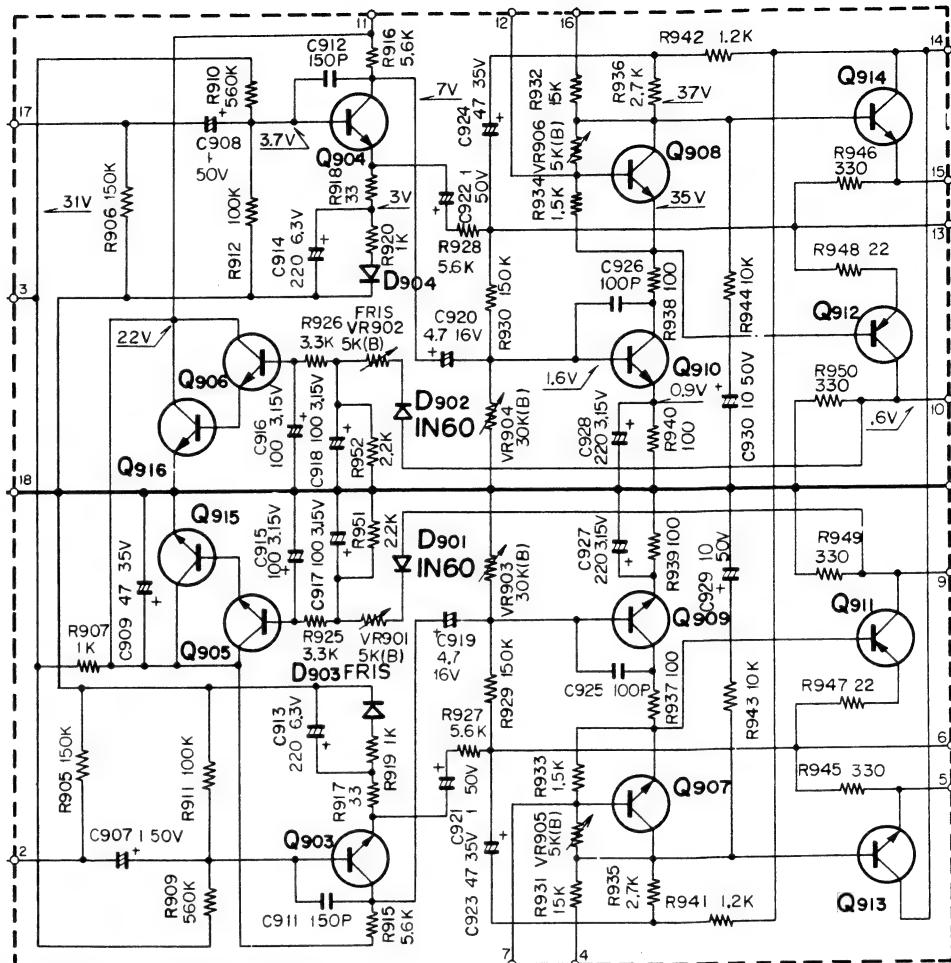
BOTTOM VIEW OF TRANSISTORS

2SC627
2SA537A
2SC708A

2SC281 (B) or (C)

2SC458C
23C458B, C
2SC458LG (C) or (D)

B C E



SEALED CIRCUIT ASSEMBLIES-PHANTOM VIEWS

Q 903 904 2SC4581 G (C) or (I)

Q 905, 906

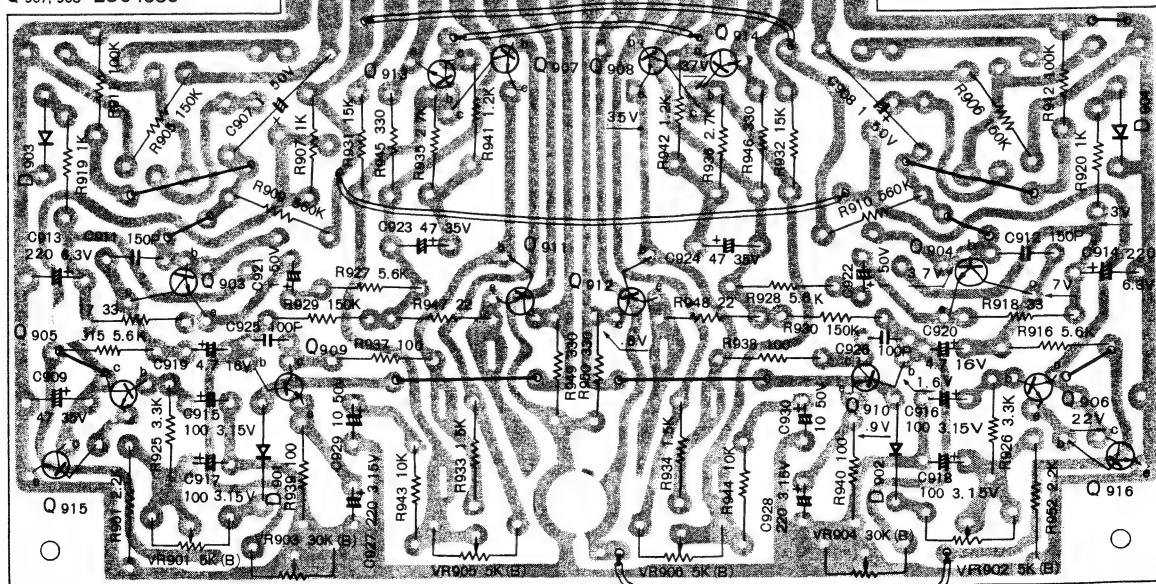
915, 916 2SC458BC

Q 907, 908 2SC458C

Q 909.910 2SC627

Q811 Q812 2SA537A

Q 911, 912 28A687A



D 901, 902 1N60 D 903, 904 FR1S

**MAIN AMP (UA 1349 K1) SECTION****PARTS DESCRIPTION LIST**

Symbol No.	Description				Part No.	Remarks
RESISTORS						
R905, 906	Insulated Carbon Film	150kΩ	±10%	1/4W		
R907	Fixed Carbon Composition	1kΩ	±10%	1/2W		
R909, 910	Insulated Carbon Film	560kΩ	±10%	1/4W		
R911, 912	Insulated Carbon Film	100kΩ	±10%	1/4W		
R915, 916	Insulated Carbon Film	5.6kΩ	±10%	1/4W		
R917, 918	Insulated Carbon Film	33Ω	±5%	1/4W		
R919, 920	Insulated Carbon Film	1kΩ	±10%	1/4W		
R925, 926	Fixed Carbon Composition	3.3kΩ	±10%	1/2W		
R927, 928	Insulated Carbon Film	5.6kΩ	±5%	1/4W		
R929, 930	Insulated Carbon Film	150kΩ	±10%	1/4W		
R931, 932	Fixed Carbon Composition	15kΩ	±10%	1/2W		
R933, 934	Fixed Carbon Composition	1.5kΩ	±10%	1/2W		
R935, 936	Fixed Carbon Composition	2.7kΩ	±10%	1/2W		
R937~940	Fixed Carbon Composition	100Ω	±10%	1/2W		
R941, 942	Fixed Carbon Composition	1.2kΩ	±10%	1/2W		
R943, 944	Fixed Carbon Composition	10kΩ	±10%	1/2W		
R945, 946	Fixed Carbon Composition	330Ω	±10%	1/2W		
R947, 948	Fixed Carbon Composition	22Ω	±10%	1/2W		
R949, 950	Fixed Carbon Composition	330Ω	±10%	1/2W		
R951, 952	Fixed Carbon Composition	2.2kΩ	±10%	1/2W		
CAPACITORS						
C907, 908	Electrolytic Tubular	1μF	50WV			
C909	Electrolytic Tubular	47μF	35WV			
C911, 912	Ceramic	150pF	±10%			
C913, 914	Electrolytic Tubular	220μF	6.3WV			
C915~918	Electrolytic Tubular	100μF	3.15WV			
C919, 920	Electrolytic Tubular	4.7μF	16WV			
C921, 922	Electrolytic Tubular	1μF	50WV			
C923, 924	Electrolytic Tubular	47μF	35WV			
C925, 926	Ceramic	100pF	±10%			
C927, 928	Electrolytic Tubular	220μF	3.15WV			
C929, 930	Electrolytic Tubular	10μF	50WV			
POTENTIOMETERS						
VR901, 902	5kΩ (B)			R10-70		
VR903, 904	30kΩ (B)			R10-76		
VR905, 906	5kΩ (B)			R10-70		
TRANSISTORS/DIODES						
Q903, 904	2SC458LG (C) or (D)					
Q905, 906	2SC458BC					
Q907, 908	2SC281 (B) or (C)					
Q909, 910	2SC627					
Q911, 912	2SA537A					
Q913, 914	2SC708A					
D901, 902	1N60					
D903, 904	FR1S					
MISCELLANEOUS						
—	Printed Circuit Board			S23-188		
—	Vinyl Tube	1.0φ (0.2m)		W07-014		
—	P. V. C. Insulated Wire	(Red) (0.3m)		W32-52		
—	Tinned Wire	0.8φ (0.05m)		W03-08		

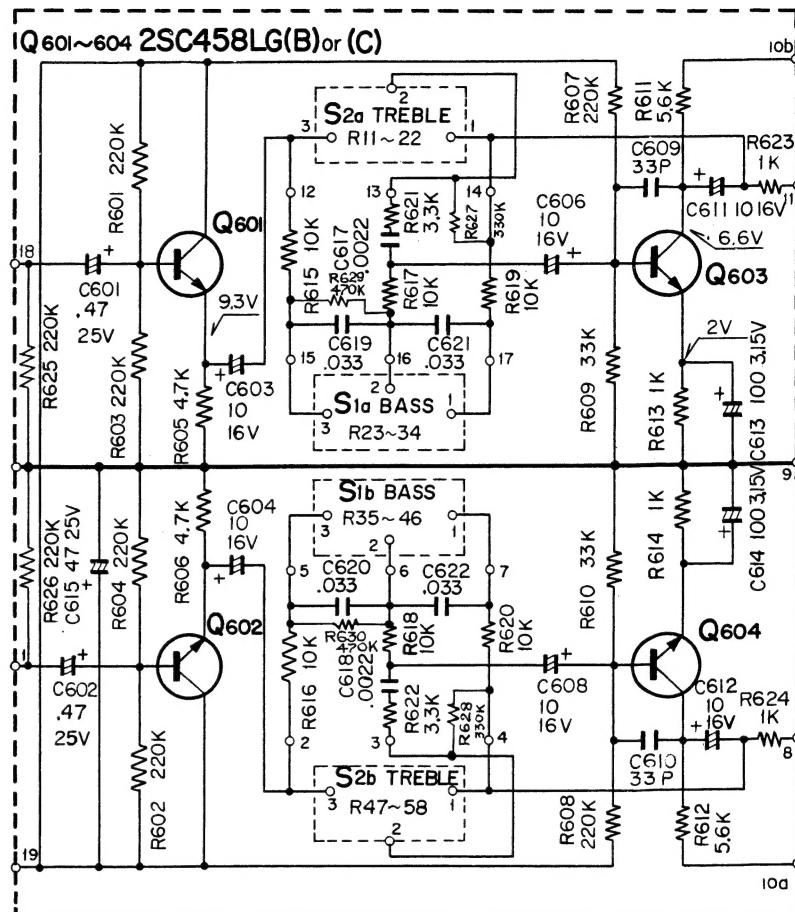
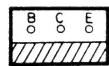


NF TONE AMP (UA13443E) SECTION

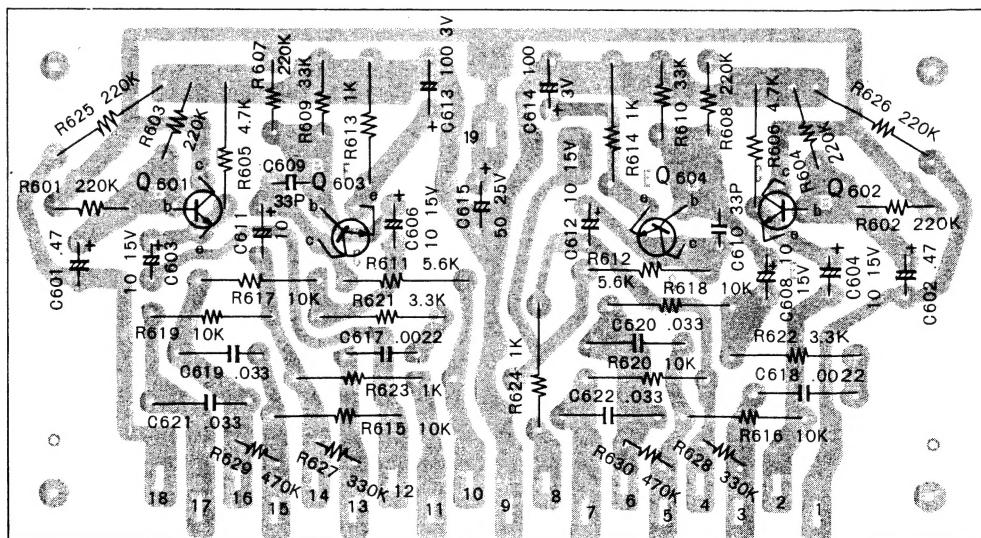
SCHMATIC DIAGRAM

BOTTOM VIEW OF TRANSISTOR

2SC458LG (B) or (C)



SEALED CIRCUIT ASSEMBLIES-PHANTOM VIEWS



Q 601~Q 604 2SC458LG (C) or (B)



NF TONE AMP (UA13443E) SECTION

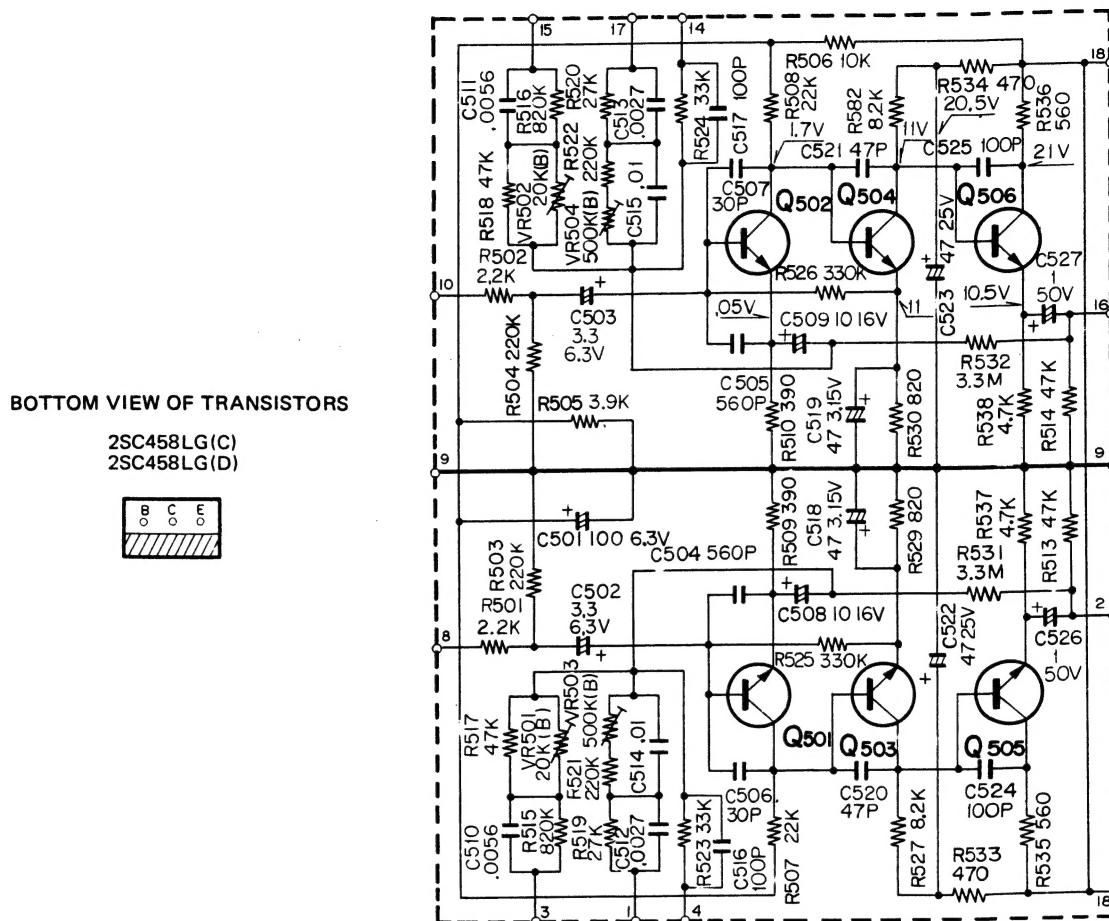
PARTS DESCRIPTION LIST

Symbol No.	Description				Part No.	Remarks
RESISTORS						
R601 ~ 604	Carbon Film Coated	220kΩ	±10%	1/4W (low noise)		
R605, 606	Insulated Carbon Film	4.7kΩ	±10%	1/4W		
R607, 608	Carbon Film Coated	220kΩ	±10%	1/4W (low noise)		
R609, 610	Carbon Film Coated	33kΩ	±10%	1/4W (low noise)		
R611, 612	Insulated Carbon Film	5.6kΩ	±10%	1/4W		
R613, 614	Insulated Carbon Film	1kΩ	±10%	1/4W		
R615, 616	Insulated Carbon Film	10kΩ	±5%	1/4W		
R617, 618	Insulated Carbon Film	10kΩ	±10%	1/4W		
R619, 620	Insulated Carbon Film	10kΩ	±5%	1/4W		
R621, 622	Insulated Carbon Film	3.3kΩ	±10%	1/4W		
R623, 624	Insulated Carbon Film	1kΩ	±10%	1/4W		
R625, 626	Insulated Carbon Film	220kΩ	±10%	1/4W		
R627, 628	Insulated Carbon Film	330kΩ	±10%	1/4W		
R629, 630	Insulated Carbon Film	470kΩ	±10%	1/4W		
CAPACITORS						
C601, 602	Aluminum Solid	0.47μF	25WV			
C603, 604	Electrolytic Tubular	10μF	16WV			
C606, 608	Electrolytic Tubular	10μF	16WV			
C609, 610	Ceramic	30pF	±10%			
C611, 612	Electrolytic Tubular	10μF	16WV			
C613, 614	Electrolytic Tubular	100μF	3.15WV			
C615	Electrolytic Tubular	47μF	25WV			
C617, 618	Mylar	0.0022μF	±10%			
C619 ~ 622	Mylar	0.033μF	±10%			
TRANSISTORS						
Q601, 602	2SC458LG (B) or (C)					
Q603, 604	2SC458LG (B) or (C)					
MISCELLANEOUS						
—	Printed Circuit Board			S23-182		
—	L Type Metal Fittings x 2			A4985		
—	Screw (⊕ P3 x 6-F-ISO) x 2			N30-3006-11		
—	Terminal			N4085		
—	Vinyl Tube	1φ (0.05 m)				

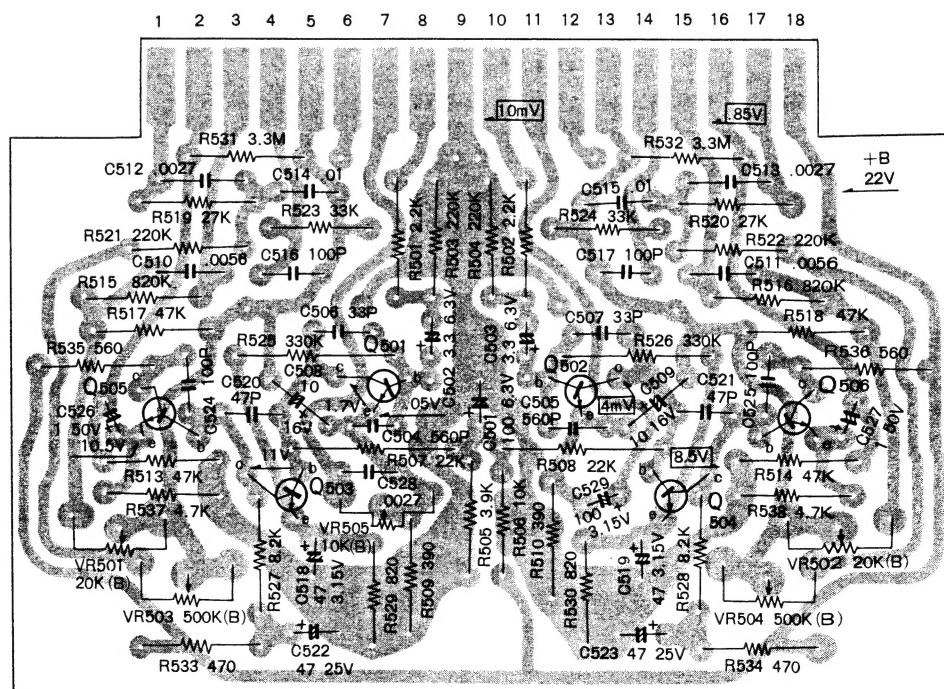


PRE AMP (UA1342K) SECTION

SCHEMATIC DIAGRAM



SEALED CIRCUIT ASSEMBLIES-PHANTOM VIEWS



Q501, 502 2SC458LG (C) Q503, 504 2SC458LG (D)
505, 506

(Note: Voltages as shown in mean signal voltages.)



PRE AMP (UA1342K) SECTION

PARTS DESCRIPTION LIST

Symbol No.	Description				Part No.	Remarks
RESISTORS						
R501, 502	Insulated Carbon Film	2.2kΩ	±10%	1/4W		
R503, 504	Insulated Carbon Film	220kΩ	±10%	1/4W		
R505	Insulated Carbon Film	3.9kΩ	±10%	1/4W		
R506	Insulated Carbon Film	10kΩ	±10%	1/4W		
R507, 508	Insulated Carbon Film	22kΩ	±5%	1/4W (low noise)		
R509, 510	Insulated Carbon Film	390Ω	±5%	1/4W		
R513, 514	Insulated Carbon Film	47kΩ	±10%	1/4W		
R515, 516	Fixed Carbon Composition	820kΩ	±5%	1/2W		
R517, 518	Insulated Carbon Film	47kΩ	±10%	1/4W		
R519, 520	Insulated Carbon Film	27kΩ	±5%	1/4W		
R521, 522	Insulated Carbon Film	220kΩ	±10%	1/4W		
R523, 524	Insulated Carbon Film	33kΩ	±5%	1/4W		
R525, 526	Carbon Film Coated	330kΩ	±5%	1/4W (low noise)		
R527, 528	Insulated Carbon Film	8.2kΩ	±10%	1/4W		
R529, 530	Insulated Carbon Film	820Ω	±10%	1/4W		
R531, 532	Fixed Carbon Composition	3.3MΩ	±5%	1/2W		
R533, 534	Insulated Carbon Film	470Ω	±10%	1/4W		
R535, 536	Insulated Carbon Film	560Ω	±10%	1/4W		
R537, 538	Insulated Carbon Film	4.7kΩ	±10%	1/4W		
CAPACITORS						
C501	Electrolytic Tubular	100μF	6.3WV			
C502, 053	Solid Aluminum	3.3μF	6.3WV			
C504, 505	Ceramic	560pF	±20%			
C506, 507	Ceramic	33pF	±10%			
C508, 509	Electrolytic Tubular	10μF	16WV			
C510, 511	Mylar	0.0056μF	±5%			
C512, 513	Mylar	0.0027μF	±5%			
C514, 515	Mylar	0.01μF	±5%			
C516, 517	Ceramic	100pF	±10%			
C518, 519	Electrolytic Tubular	47μF	3.15WV			
C520, 521	Ceramic	47pF	±10%			
C522, 523	Electrolytic Tubular	47μF	25WV			
C524, 525	Ceramic	100pF	±10%			
C526, 527	Electrolytic Tubular	1μF	50WV			
POTENTIOMETERS						
VR501, 502	20kΩ (B)			R10-75		
VR503, 504	500kΩ (B)			R10-78		
TRANSISTORS						
Q501, 502	2SC458LG (C)					
Q503, 504	2SC458LG (D)					
Q505, 506	2SC458LG (C)					
MISCELLANEOUS						
—	Printed Circuit Board			S23-178		
—	Vinyl Tube	1.0φ 0.07 m		W07-01Z		